REMARKS

In response to the Office Action mailed on December 18, 2007, Applicants respectfully request reconsideration. To further the prosecution of this Application, Applicant submit the following amendments and remarks discussing patentability of rejected and newly added claims. Applicants respectfully request that the application be passed to issue.

Applicant are appreciative of the Examiner's review of the claims and allowance of claim 33 and the indication that claims 10-16, 26-32, and 39 would be allowable if rewritten to include intervening limitations of base claims.

Summary of an Embodiment of the Invention

Prior to discussion of the pending claims, Applicant would like to briefly discuss an illustrative embodiment of the present invention. One embodiment of the present invention, in contrast to conventional approaches, is directed to a technique for communicating in a network. For example, a first data communication device (e.g., a thin client) receives data from a second communication device (e.g., a server or central computer) over a network. The first data communication device detects an actual bandwidth associated with receiving data from the second data communication device. Based on an actual detected bandwidth associated with receiving the data, the first data communication device generates a bandwidth metric identifying a proposed data rate for transmitting future data from the second communication device to the first data communication device. The first communication device transmits the bandwidth metric to the second data communication device for future data transmissions. Based on use of this technique, the second communication device transmits at or near a maximum possible bandwidth supported by a network link supporting transmission of data to the first data communication device.

Rejection of Claims

The Examiner has rejected claim 1 under 35 U.S.C. § 102(a) as being unpatentable over Hanko (U.S. Patent 6,438,141). Applicants are appreciative of the Examiner's review of pending claim 1 and respectfully request further consideration.

The claimed invention recites steps of:

detecting an actual bandwidth associated with receiving data from a second data communication device;

generating a bandwidth metric based on the actual bandwidth associated with receiving the data, the bandwidth metric identifying a proposed data rate for transmitting future data from the second data communication device to the first data communication device; and

transmitting the bandwidth metric to the second data communication device.

Claim 1 has been amended to include the limitations of claim 2 and therefore now includes limitations of: wherein detecting the actual bandwidth includes:

receiving data from the second data communication device; and
measuring a rate of receiving the data from the second communication device.

The Examiner likens the claimed invention to Hanko. Applicant respectfully traverses the rejection because the claim includes limitations not recited by Hanko. Thus, the Applicant contends that the office action uses hindsight to reject the claimed invention.

More specifically, claim 1 recites that the first data communication device detects the bandwidth associated with receiving data and generates the bandwidth metric. In other words, the device receiving the data measures the rate of receiving the data. The office action cites column 10, lines 45-56 as follows:

FIG. 3 is a flow diagram illustrating a process performed by a data receiver according to one embodiment of the invention. The process begins in step 301. In step 302, the data receiver determines the bandwidth of the communication medium and the number of data sources that will be transmitting data. In step 303, the data receiver determines the average bandwidth allocation for each data source by dividing the bandwidth of the communication medium by the number of data sources. In step 304, the data receiver allocates the average bandwidth allocation determined in step 303 to each data source. The data receiver informs each data source of its bandwidth allocation.

In step 305, the data receiver receives estimates of bandwidth needs from the data sources. In step 306, the data receiver reallocates bandwidth allocations based on the estimates received from the data sources. The data receiver informs each data source of its newly determined bandwidth allocation. From step 306, the process returns to step 305. (emphasis added)

In contrast to Hanko, the claimed invention recites that the first data communication device detects the actual bandwidth associated with received data by receiving data from the second communication device and measuring a rate of receiving the data. Hank describes no such functionality.

For example, Hanko indicates to receive an estimate of bandwidth needs from the data sources. An estimate is not equivalent to an actual measurement. In most communication environment, the actual rate of receiving data is different than an estimated bandwidth of a communication medium due to changing factors such as sudden and unexpected congestion.

Moreover, Hanko indicates that the estimates are received from the remote data sources. This means the bandwidth measurements are done in a different device than as in the claimed invention. For example, the claimed invention recites that the measurement is performed in the first communication device receiving the data, not in

one of the data sources as in Hanko. The claimed invention therefore alleviates the second communication device from having to make any measurements as it is done on the receiving device. Accordingly, the claimed invention includes distinguishing limitations over Hanko contrary to the assertions set forth in the pending office action.

Transmission of the bandwidth metric as in the claimed invention enables the data receiver to take into account the actual rate that the first data communication device receives the data and send a proposed bandwidth rate for receiving future data. Thus, the device receiving the data (e.g., the first data communication device) notifies the data sender of needed future bandwidth, which may be critical to an application. In other words, based on the foregoing discussion, one aspect of the invention involves granting bandwidth (e.g., the proposed data rate) for a data stream based on actually measured bandwidth as measured at a receiver (e.g., a client) receiving the data. An amount of newly allocated bandwidth may depend at least in part on the actually measured bandwidth, allowing for more efficient use of available bandwidth.

For the above reasons, Applicant respectfully requests allowance of claim 1. By virtue of dependency, Applicant respectfully submits that claims 3-16 and 36-40 should be in condition for allowance.

Claim 17 has been amended to include the limitations of claim 18 and thus includes similar limitations as claim 1 and should be allowable for similar reasons. Accordingly, claim 17 and corresponding dependent claims 19-32 should be in condition for allowance.

Claims 34 and 35 each should be allowable for similar reasons as discussed above.

Note that each of the dependent claims includes further distinguishing features over the cited prior art. Some of the distinguishing features are discussed below.

Claim 4

The office action takes official notice that UDP is a standard non-acknowledgment protocol for communicating information in a network environment. Applicants agree that it is a known standard. However, Applicant respectively disagrees that mere existence of the protocol does not render the claimed invention obvious because there is no indication whatsoever that either Hanko or the UDP protocol propose generating bandwidth metrics as recited by the claimed invention.

Claim 7

The office action recites Hanko at column 10, lines 54-58 to rejection claim 7. The passages reads as follows:

> In step 305, the data receiver receives estimates of bandwidth needs from the data sources. In step 306, the data receiver reallocates bandwidth allocations based on the estimates received from the data sources. The data receiver informs each data source of its newly determined bandwidth allocation. From step 306, the process returns to step 305. (emphasis added)

Applicant would like to point out that this passage provides no indication whatsoever of receiving a request for allocation of bandwidth. For example, the office action likens the second communication device in the claimed invention to the data sources in Hanko. Applicant respectfully submits that there is no indication whatsoever that the data sources send a request to the data receiver regarding a request for bandwidth allocation.

Accordingly, claim 7 includes limitations not found in the cited prior art. For similar reasons, Applicant respectfully submits that claim 8 should be in condition for allowance as well.

Claim 9

Applicant would like to further point out that claim 9 includes further distinguishing language over the cited prior art. For example, claim 9 depends from claim 1 and recites: "in addition to transmitting the bandwidth metric to the second data communication device, providing a unique identifier along with the bandwidth metric for use by the second data communication device to tag the future data transmitted from the second data communication device to the first data communication device."

The office action cites Hanko at column 10, lines 54-59 to reject the claimed invention. This passage reads as follows:

> In step 305, the data receiver receives estimates of bandwidth needs from the data sources. In step 306, the data receiver reallocates bandwidth allocations based on the estimates received from the data sources. The data receiver informs each data source of its newly determined bandwidth allocation. From step 306, the process returns to step 305. (emphasis added)

This passage only indicates that a receiver allocates bandwidth to a data sender. The claimed invention includes allocating future bandwidth as well as providing tags to be used by the data sender. In such an embodiment, when the receiver of the data can identify what bandwidth the sender is at least attempting to transmit the data. Also, the receiver can identify what data received by the first communication device is received for a given bandwidth allocation. Applicant respectfully submits that the cited prior art neither teaches nor suggests such functionality. Accordingly, Applicant respectfully request allowance of claim 9. For similar reasons as claim 9, amended claim 34 should be in condition for allowance.

CONCLUSION

In view of the foregoing remarks, Applicants submit that the pending claims as well as newly added claims are in condition for allowance. A Notice to this affect is respectfully requested. If the Examiner believes, after reviewing this Response, that the pending claims are not in condition for allowance, the Examiner is respectfully requested to call the Applicant(s) Representative at the number below.

If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-3735.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned Attorney at (508) 616-9660, in Westborough, Massachusetts.

Respectfully submitted,

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